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10/611,679	07/02/2003	Jouni Kauhanen	60091.00215	5344

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EXAMINER	
DAVENPORT, MON CHERI S	
ART UNIT	**PAPER NUMBER**
2609	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/611,679	KAUHANEN, JOUNI	
	Examiner	Art Unit	
	Mon Cheri S. Davenport	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-34 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-34 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 02 July 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 12/02/03 and 8/26/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Action is in response to the Application filed July 2, 2003.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The references listed in the Information Disclosure Statement file on December 2, 2003 and August 26, 2004 have been considered by the examiner (see attached PTO-1449 form or PTO/SB/08A and 08B forms).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims **1-34** rejected under 35 U.S.C. 102(b) as being anticipated by Kuwahara et al. (US Patent Application Publication 2002/0009974).

Regarding **Claim 1** Kuwahara et al. discloses a time adjustment method in a telecommunication system, comprising: receiving, in a base station, a time reference signal providing time reference in the telecommunication system ***(see figure 1);***

generating a test signal in the base station***(see figure 1, section 15, reference clock generator, see paragraph [0024])*** ;

detecting the test signal in the base station***(see figure 1, section 13, GPS antenna, see paragraph [0023])***; and

providing the test signal with time characteristics proportional to the time reference based on detection of the test signal and the time reference ***(see figure 1, section 18, transmission timing measurements apparatus, see paragraph [0023]).***

Regarding **Claim 2** Kuwahara et al. discloses everything as applied above (see claim 1). In addition the method includes:

providing data transmitted from the base station with time characteristics proportional to the time reference by using the time characteristics of the test signal***(see figure 1, section 16, cellular antenna, see paragraph [0025], time stamp of transmission placed by the base station plus the propagation time to the cellular antenna).***

Regarding **Claim 3** Kuwahara et al. discloses everything as applied above (see claim 1). In addition the method includes:

emitting the test signal from an antenna unit of the base station; and detecting the test signal when emitting the test signal ***(see paragraph [0028], timing transmitted from the base station antenna, covering a large number of mobile terminals)***.

Regarding **Claim 4** Kuwahara et al. discloses everything as applied above (see claim 1). In addition the method includes:

determining a delay between generating the test signal and detecting the test signal ***(see paragraph [0028], by repetition of a small adjustment, such as a delay, or advance of 1/16 in every 80 millisecond frame).***

Regarding **Claim 5** Kuwahara et al. discloses everything as applied above (see claim 1). In addition the method includes:

synchronizing the base station by using the time characteristics of the test signal***(see paragraph [0028], timing of the signal transmitted from the base station antenna is synchronized with the reference clock generator).***

Regarding **Claim 6** Kuwahara et al. discloses a time stamping method in a telecommunication system, comprising: receiving, in a base station, a time reference signal providing time reference in the telecommunication system***(see figure 3, paragraph [0020]);***

generating an idle period in the transmission of a base station***(see paragraph [0035], propagation time);***

determining, in the base station, time characteristics of the idle period relative to the time reference by means of a power measurement ***(see paragraph [0029], TDOA, time difference of arrival)***; and

providing at least a portion of data to be transmitted from the base station with time characteristics proportional to the time reference by using time characteristics of the idle period ***(see paragraph[0037], control apparatus regularly delivers error information on the transmission timing, may be transmitted by wired or wireless mean to the center).***

Regarding **Claim 7** Kuwahara et al. discloses everything as applied above (see claim 6). In addition the method includes:

positioning a mobile station by using time characteristics of the at least portion of data ***(see paragraph[0029], position measurement will occur if the relative reception timing difference of the signal transmitted from each base station TDOA is accurately calculated)***.

Regarding **Claim 8** Kuwahara et al. discloses everything as applied above (see claim 6). In addition the method includes:

emitting the idle period from an antenna unit of the base station ***(see paragraph [0025], by subtracting propagation time, the reference clock then adjust the time stamp from the base station antenna accordingly);*** and

determining time characteristics of the idle period such that an uncertainty of a time interval between determining time characteristics of the idle period and emitting the idle period from the antenna unit of the base station is below a predefined value ***(see paragraph [0028], a very small adjustment such as a "delay" or "advance" of 1/16 un every 80 millisecond frame).***

Regarding **Claim 9** Kuwahara et al. discloses everything as applied above (see claim 6). In addition the method includes:

emitting the idle period from an antenna unit of the base station ***(see paragraph [0026], wherein the transmission time stamp is herein defined to be included in the "reception time" received according to cellular antenna)***; and

determining time characteristics of the idle period at a moment of emitting the idle period from the antenna unit of the base station (***see paragraph [0026], the reference clock generator allows a measurement of the exact time at which the signal transmitted from the antenna).***

Regarding **Claim 10** Kuwahara et al. discloses everything as applied above (see claim 6). In addition the method includes:

determining timing of a predefined portion of the idle period relative to the time reference by means of the power measurement***(see paragraph [0029], TDOA, time difference of arrival,)***; and

providing the at least a portion of data to be transmitted from the base station with time characteristics proportional to the time reference by using the timing of the predefined portion of the idle period(***see paragraph [0027], Because an accurate reception time for the signal transmitted from the base station antenna is already known at the cellular antenna).***

Regarding **Claim 11** Kuwahara et al. discloses everything as applied above (see claim 6). In addition the method includes:

further comprising determining time characteristics of an idle period in a frame relative to the time reference***(see paragraph [0028], a very small adjustment such as a "delay" or "advance" of 1/16 un every 80 millisecond frame)***;

providing the frame with the time characteristics proportional to the time reference by using time characteristics of the idle period in the frame ***(see paragraph [0028], the reference clock generator preferably eliminates deviations in the time of signal transmission from the base station antenna).***

Regarding **Claim 12** Kuwahara et al. discloses everything as applied above (see claim 6). In addition the method includes:

emitting the idle period from an antenna unit of the base station ***(see paragraph [0025], by subtracting propagation time, the reference clock then adjust the time stamp from the base station antenna accordingly)***;

detecting, in a mobile station, the idle period emitted from the antenna of the base station ***(see paragraph [0032], see figure 1, section 4, terminal, to perform location via triangulation must be equipped with transmission timing apparatus in order to generate accurate location of the terminal)***;

determining the time of arrival of the idle period in the mobile station ***(see paragraph [0038], an accurate location can be calculated by the terminal due to the compensation by the terminal for the timing offset values of the base station);*** and

positioning the mobile station by using the time of arrival of the idle period ***(see paragraph [0038], the information accumulate at the center is downloaded to the terminal for location measurement).***

Regarding **Claim 13** Kuwahara et al. discloses everything as applied above (see claim 6) In addition the method includes:

synchronizing the transmission of the base station by using the time characteristics of the idle period relative to the time reference ***(see paragraph[0030],signal compensation for delay differences among sectors, as***

revealed by the cellular receiver, must be fed back to the base band unit of each base station).

Regarding **Claim14** Kuwahara et al. discloses a telecommunication system comprising:

a base station for providing radio transmission and reception for mobile stations***(see figure 3, section 5,6, and 7, base station);***

wherein the base station comprises a time reference signal receiving unit for receiving a time reference signal providing time reference in the telecommunication system ***(see figure 3, section 20,21, and 22, transmission timing apparatus)*** ;

wherein the base station comprises an idle period **(see paragraph[0029],cable delay occur when a signal is inputted from the GPS antenna cable delay may occur within the receiver , or over the connection between the receiver)**generator for generating an idle period in the transmission of the base station ***(see figure 3, section 24, apparatus for receiving timing measurement, filter delay);***

wherein the base station comprises a detecting unit operationally connected to the idle period (cable delay)generator and the time reference signal receiving unit for determining time characteristics of the idle period relative to the time reference by means of a power measurement ***(see figure 3, section 21, see paragraph [0029], TDOA, time difference of arrival)***; and

a time stamping unit operationally connected to the detecting unit for providing at least a portion of data to be transmitted from the base station with the time characteristics proportional to the time reference by using the time characteristics of the idle period***(see figure 3, section 21, apparatus for transmission timing measurement).***

Regarding **Claim 15** Kuwahara et al. discloses everything as applied above (see claim 14). In addition the telecommunication system includes:

a positioning unit operationally connected to the base station for positioning(location measurement) a mobile station by using time characteristics of the at least a portion of data ***(see figure 3, section 28, center, see paragraph [0038], information accumulated at the center is downloaded to the terminal for location measurement).***

Regarding **Claim 16** Kuwahara et al. discloses everything as applied above (see claim 14) In addition the telecommunication system includes:

wherein the base station comprises an antenna unit operationally connected to the idle period generator for emitting the idle period***(see figure 3, section 16, cellular***

antenna, see paragraph [0034], signal transmitted from a base station antenna via a cellular antenna); and

wherein the detecting unit is configured to determine time characteristics of the idle period such that the uncertainty of the time interval between determining time characteristics of the idle period and emitting the idle period from the antenna unit of the base station is below a predetermined value ***(see paragraph [0028], a very small adjustment such as a "delay" or "advance" of 1/16 un every 80 millisecond frame).***

Regarding **Claim 17** Kuwahara et al. discloses everything as applied above (see claim 14) In addition the telecommunication system includes:

wherein the base station comprises an antenna unit operationally connected to the idle period generator for emitting the idle period***(see figure 3, section 16, cellular antenna, see paragraph [0034], signal transmitted from a base station antenna via a cellular antenna);*** and

the detecting unit is configured to determine time characteristics of the idle period at a moment of emitting the idle period(***see paragraph [0026], the reference clock generator allows a measurement of the exact time at which the signal transmitted from the antenna).***

Regarding **Claim 18** Kuwahara et al. discloses everything as applied above (see claim 14) In addition the telecommunication system includes:

wherein the detecting unit is configured to determine timing of a predefined portion of the idle period relative to the time reference by means of the power measurement***(see paragraph [0029], TDOA, time difference of arrival)***; and

wherein the time stamping unit is configured to provide the at least a portion of data to be transmitted from the base station with time characteristics proportional to the time reference by using the timing of the predefined portion of the idle period***(see paragraph [0038], information accumulated at the center is downloaded to the terminal upon request)***.

Regarding **Claim 19** Kuwahara et al. discloses everything as applied above (see claim 14) In addition the telecommunication system includes:

wherein the detecting unit is configured to determine the time characteristics of an idle period in a frame relative to time reference ***(see paragraph [0028], a very small adjustment such as a "delay" or "advance" of 1/16 un every 80 millisecond frame)***; and

wherein the time stamping unit is configured to provide the frame with the time characteristics proportional to the time reference by using time characteristics the idle period in the frame***(see paragraph [0028], the reference clock generator preferably eliminates deviations in the time of signal transmission from the base station antenna).***

Regarding **Claim 20** Kuwahara et al. discloses everything as applied above (see claim 14) In addition the telecommunication system includes:

wherein the base station comprises an antenna unit operationally connected to the idle period generator for emitting the idle period ***(see figure 3, section 21 and 24, apparatus for receiving timing measurement) ;***

the telecommunication system further comprising a mobile station configured to detect the idle period emitted from the antenna unit of the base station***(see figure 3, section 4, mobile terminal);***

wherein the mobile station is configured to determine the time of arrival of the idle period ***(see paragraph[0038], at the terminal the location is calculated by using the compensated reception timing information obtained by subtracting from the reception timing measured at the terminal the offset);*** and

wherein the positioning unit is configured to position(**location measurement**) the mobile station by using the time of arrival of the idle period ***(see paragraph[0038], information accumulated at the center is downloaded upon request for location measurement).***

Regarding **Claim 21** Kuwahara et al. discloses everything as applied above (see claim 14) In addition the telecommunication system includes:

wherein the base station is configured to synchronize transmission of the base station by using time characteristics of the idle period relative to the time reference ***(see paragraph[0039], once the transmission timing offset is measured, the compensation value for the transmission varies, the results are stored at the center to enable location measurement) .***

Regarding **Claim 22** Kuwahara et al. discloses a time adjustment mechanism in a telecommunication system, comprising:

receiving means for receiving, in a base station, a time reference signal providing time reference in the telecommunication system ***(see figure 3, section 20,21,22, apparatus for transmission timing measurement);***

generating means for generating a test signal in the base station ***(see paragraph[0026], the accurate time measurement mechanism is not limited to***

GPS, but may include any very accurate time keeping methodology, such as but not limited to a cesium clock provided at the base station);

detecting means for detecting the test signal in the base station ***(see figure 3, section 13, GPS antenna);*** and

providing means for providing the test signal with time characteristics proportional to the time reference based on detection of the test signal and the time reference ***(see figure 3, section 20,21,22, apparatus for transmission timing measurement***) .

Regarding **Claim 23** Kuwahara et al. discloses everything as applied above (see claim 22) In addition the time adjustment mechanism includes:

further comprising providing means for providing data transmitted from the base station with time characteristics proportional to the time reference by using the time characteristics of the test signal ***(see figure3, section 16, cellular antenna)*** .

Regarding **Claim 24** Kuwahara et al. discloses everything as applied above (see claim 22) In addition the time adjustment mechanism includes:

emitting means for emitting the test signal from an antenna unit of the base station ***(see figure 3, section 16, cellular antenna)*** ; and

second detecting means for detecting the test signal when emitting the test signal ***(see figure 3, section 4, mobile terminal).***

Regarding **Claim 25** Kuwahara et al. discloses everything as applied above (see claim 22) In addition the time adjustment mechanism includes:

determining means for determining a delay between generating the test signal and detecting the test signal ***(see figure 3, section 24, apparatus for receiving timing measurement).***

Regarding **Claim 26** Kuwahara et al. discloses everything as applied above (see claim 22) In addition the time adjustment mechanism includes:

synchronizing means for synchronizing the base station by using the time characteristics of the test signal ***(see figure 3, section 24, apparatus for receiving timing measurement).***

Regarding **Claim 27** Kuwahara et al. discloses a time stamping mechanism in a telecommunication system, comprising:

receiving means for receiving, in a base station, a time reference signal providing time reference in the telecommunication system ***(see figure 3, section 13, GPS antenna)***

generating means for generating an idle period in the transmission of a base station ***(see figure 3, section 24, apparatus for receiving timing measurement, filter delay);***

determining means for determining, in the base station, time characteristics of the idle period relative to the time reference by means of a power measurement ***(see figure 3, section 21, apparatus for transmission timing measurement);*** and

providing means for providing at least a portion of data to be transmitted from the base station with time characteristics proportional to the time reference by using time characteristics of the idle period***(see figure 3, section 28, center, see paragraph,[0038]***).

Regarding **Claim 28** Kuwahara et al. discloses everything as applied above (see claim 27) In addition the time stamping mechanism includes:

positioning means for positioning a mobile station by using time characteristics of the at least portion of data ***(see figure 3, section 28, center, see paragraph[0038]).***

Regarding **Claim 29** Kuwahara et al. discloses everything as applied above (see claim 27) In addition the time stamping mechanism includes:

emitting means for emitting the idle period from an antenna unit of the base station***(see figure 3, section 16, cellular antenna);*** and

second determining means for determining time characteristics of the idle period such that an uncertainty of a time interval between determining time characteristics of the idle period and emitting the idle period from the antenna unit of the base station is below a predefined value ***(see figure 3, section 24, apparatus for receiving timing measurement, filter delay).***

Regarding **Claim 30** Kuwahara et al. discloses everything as applied above (see claim 27) In addition the time stamping mechanism includes:

emitting means for emitting the idle period from an antenna unit of the base station ***(see figure 3, section 16, cellular antenna);*** and

second determining means for determining time characteristics of the idle period at a moment of emitting the idle period from the antenna unit of the base station ***(see figure3, section 24, apparatus for receiving timing measurement, see paragraph, [0038]).***

Regarding **Claim 31** Kuwahara et al. discloses everything as applied above (see claim 27) In addition the time stamping mechanism includes:

second determining means for determining timing of a predefined portion of the idle period relative to the time reference by means of the power measurement***(see paragraph [0029], TDOA, time difference of arrival)***; and

second providing means for providing the at least a portion of data to be transmitted from the base station with time characteristics proportional to the time reference by using the timing of the predefined portion of the idle period ***(see figure 3, section 21, apparatus for transmission timing measurement).***

Regarding **Claim 32** Kuwahara et al. discloses everything as applied above (see claim 27) In addition the time stamping mechanism includes:

second determining means for determining time characteristics of an idle period in a frame relative to the time reference ***(see paragraph [0028], a very small adjustment such as a "delay" or "advance" of 1/16 un every 80 millisecond frame)***;

second providing means for providing the frame with the time characteristics proportional to the time reference by using time characteristics of the idle period in the frame ***(see paragraph [0028], the reference clock generator preferably eliminates deviations in the time of signal transmission from the base station antenna).***

Regarding **Claim 33** Kuwahara et al. discloses everything as applied above (see claim 27) In addition the time stamping mechanism includes:

emitting the idle period from an antenna unit of the base station ***(see figure 3, section 16, cellular antenna);***

detecting means for detecting, in a mobile station, the idle period emitted from the antenna of the base station ***(see figure 3, section 4, mobile terminal, section 28, center, paragraph[0038]);***

second determining means for determining the time of arrival of the idle period in the mobile station ***(see figure 3, section 4, mobile terminal, section 28, center, paragraph[0038]);*** and

positioning means for positioning the mobile station by using the time of arrival of the idle period ***(see figure 3, section 28, center, see paragraph [0038]).***

Regarding **Claim 34** Kuwahara et al. discloses everything as applied above (see claim 27) In addition the time stamping mechanism includes:

synchronizing means for synchronizing the transmission of the base station by using the time characteristics of the idle period relative to the time reference***(see paragraph[0039], once the transmission timing offset is measured, the compensation value for the transmission varies, the results are stored at the center to enable location measurement).***

Citation of Pertinent Prior art

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dean (US Patent Number 6,201,802) see abstract.

Ranta (US Patent Number 5,838,672) see abstract.

Rodman et al. (US Patent Number 4,411,007) see abstract.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mon Cheri S. Davenport whose telephone number is 571-270-1803. The examiner can normally be reached on Monday - Friday 8:00 a.m. - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on 571-272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MD/md
March 29, 2007

3-30-07
LANA LE
PRIMARY EXAMINER